Wayne Initiative for School Health: Program Planning and Evaluation of a School-Based Health Center Program in Wayne County, NC

By

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Abstract

Many adolescents in the United States have considerable health care needs. High-risk behavior related to drugs, alcohol, and sexual activity can lead to increased morbidity and mortality among this age group. Poor diet and low levels of exercise can lead to significant health problems for adolescents. While access to health care providers plays an important role in tackling these issues with youth, studies have found that adolescents are not accessing or utilizing the care they may need. Teens cite difficulty accessing care, fears related to confidentiality, and cost as some reasons for forgone care. School-based health centers (SBHCs) are one way to improve adolescent access to and utilization of care. SBHCs are comprehensive primary care centers located on school grounds that provide screenings, acute care, care for chronic conditions, mental health services, and health education to students.

There is considerable literature on different elements related to SBHCs, however a there is paucity of published information that provides details about planning, implementing, and evaluating SBHC programs. This paper addresses this gap in the literature by providing provide details of the program planning and implementation used by the Wayne Initiative for School Health (WISH) program to establish SBHCs in two resource-poor middle schools in their county. It also provides methods of evaluation according to program objectives. The paper provides a review of the current literature on SBHC planning and evaluation; the background, context, and goals and objectives of the program; program implementation charts; and suggested study design and methods of evaluation of the program.

SBHCs have the potential to have a significant impact on adolescent health. This requires expanding the knowledge and literature of planning, implementation, and evaluation details. Future planners will benefit from this information, and will hopefully garner support at the local, state, and national level for establishing and sustaining SBHCs in all settings.

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INTRODUCTION

The problem: Adolescents have considerable health care needs that go unmet

Adolescence in the United States is considered to be a time when youth are healthy, growing, and looking towards the future. While this may be the case for some, it has become evident that adolescence is also a time when many youth partake in high-risk behaviors that cause injury and/or death. These patterns of behavior may lead to lifestyles that impact their physical and mental health into their adult years. In 2007, the Center for Disease Control (CDC) reported that 72% of deaths among 10-24 year olds were caused by motor-vehicle crashes (30%), other unintentional injuries (15%), homicide (15%), and suicide(12%)[1]. Factors contributing to these deaths include, lack of seat-belt use, riding with a driver who had consumed alcoholic beverages, drinking and driving, alcohol and drug use, carrying a weapon, and mental health problems[2, 3]. Engaging in sexual intercourse significantly affects adolescents' physically, psychologically, and socially. In 2002, nearly 50% of adolescents age 15-17 had engaged in some form of sexual contact with someone of the opposite sex in their lifetime[4]. The result is 750,000 teen pregnancies per year, 82% of which are unintended[5]. Teen pregnancies often lead to reduced educational attainment and employment opportunities for teen mothers and poor health and developmental outcomes for their babies[4]. Additionally, teens have a higher likelihood of contracting sexually transmitted diseases than adults, which can have lasting consequences on fertility for some young women and can make adolescents more susceptible to contracting HIV[4].

Lastly, in 2007 the CDC found that 20.0% of high-school students had smoked cigarettes at least once during the preceding 30 days, 78.6% reported not eating five or more vegetables per day in the preceding week, 13.0% were obese, and only 34.7% of students met recommended levels of physical activity per week[1]. These behaviors are all risk factors for cardiovascular disease and cancer, two of the biggest causes of death among adults over the age of 25[2]. While, multiple strategies are required to address these problems, health care

providers play a critical role in tackling many of the issues related to the education about, diagnosis of, and treatment of high-risk behaviors that could affect adolescents for the rest of their lives.

School-aged children/adolescents, however, are not accessing or utilizing care that could provide screening, education, and treatment for behaviors and conditions that lead to morbidity and mortality among their age group[6]. While adolescents- as a whole- suffer from lack of interaction with health care providers, certain groups are significantly more affected than others. This results in disparities in care and health outcomes. A large study of students in grades 7-12 found that 18.7% reported at least once in the past year where they believed they should have sought medical care, but did not[6]. Risk factors for forgone medical care include being uninsured, low socioeconomic status (SES), being an older adolescents, being a minority, coming from a single parent home, and participating in behaviors that result in negative health, particularly smoking, alcohol use, and being sexually active[6].

Studies have found that independently, being uninsured and being 'low-income' affect an adolescent's access to care. An estimated 14.1% of adolescents were uninsured in 1995, with older adolescents, minorities, those from low-income families, and those from single-parent homes at a higher risk for being uninsured. These uninsured adolescents are five times as likely to have unmet health needs, and twice as likely to go without physician contact for the course of a year when compared to their insured counterparts[7]. Low-income adolescents – regardless of insurance status – are four times as likely to go without care when compared with middle- and higher-income adolescents, and seven times more likely to have unmet medical care needs[8].

Insurance status and low SES are not the only reason teens forgo medical care. Over half of students did not seek medical care because they believed the problem would go away. They also reported that fears about what the physician would say and do, as well as not wanting parents to know, also played a role in forgone care. Access problems were evident as well.

Many students reported they did not seek care because they did not know who to see, had no transportation, had no one to go along with, a parent or guardian would not go with them, they had trouble making an appointment, or they could not pay[6]. Given the obvious need for access to health care providers and evident lack of care for adolescents, especially among low-income and minority youth, those invested in the health of these populations should seek ways to improve access and overcome barriers that prevent teens from seeking care.

A solution: School-based health centers

One way to promote adolescent health care is through school-based health centers (SBHCs). SBHCs were created in the early 1970s, with the goal of providing school-aged children with quality health care, regardless of socio-economic status[9]. Physically located on school grounds, the first secondary school-based comprehensive clinics were opened in West Dallas, TX and St. Paul, MN[10,11]. The centers were initially designed to work on preventing teen-age pregnancy and providing services for inner-city high school students with unmet health needs and little access to health care. However, SBHCs quickly began providing comprehensive primary health care services related to both physical and emotional health needs[12]. Proponents realized the centers had to provide care that was culturally sensitive, confidential, comfortable, and safe. These centers allow students to be evaluated, diagnosed, treated on-site, and return to class. On-site laboratory services prevent the need for referrals, yet students with complicated medical conditions or needs can be linked into a general primary care provider[13].

Though slow to start, the number of centers around the country grew quickly through the 1990s thanks to support and funding from the Robert Wood Johnson Foundation[9, 14]. According to the National School-Based Health Care National Census, as of 2005 there were 1708 centers in 45 states covering 1.1 million children in 2000[15], with a slight majority located in urban areas. SBHCs were initially started in high schools, but have been growing in elementary and middle schools as well[16].

Although there is a lot of variability, SBHCs are generally staffed by a combination of physicians, physician assistants, and nurse practitioners, as well as mental health professionals, health educators, social workers, and nutritionists. They provide comprehensive health assessments, anticipatory guidance, vision and hearing screens, immunizations, treatment of acute illnesses, lab services, and prescription services. Additionally, the majority SBHCs provide mental health services, such as comprehensive evaluation and treatment, substance abuse counseling, crisis intervention, and case management. The majority of SBHCs bill Medicaid and other third-party insurers for patient encounters[13].

Both parents and students generally support SBHCs. A survey of parents conducted by the Center for Health and Health Care in Schools found that 80% of parents voiced support for the SBHC care model[17], and New York City high school students with access to a SBHC reported an average of up to three visits to the center per year[18]. Overall, the most common outcome measures indicate that SBHCs are beneficial for students. A significantly higher number of students with access to a SBHC visit a health care provider during the year than those without SBHCs[14]. Compared to those without SBHCs, students using SBHCs have been found to be more likely to graduate[19], are 10 times more likely to make a visit for mental health care or for substance abuse, have greater knowledge about health issues[20], and have had a more significant decline in pregnancy rates[21].

What is missing: Details of program planning and evaluation

With avid proponents and apparent successes in providing adolescents with needed care, there has been a fair amount of literature published on SBHCs over the past 40 years. However, the majority of publications are either presenting the need for SBHCs[9, 14, 15] and their history[22], outlines of programs within SBHCs[23-25], outcomes and assessments of specific SBHC programs or issues[13, 26-29], or the relationship between some SBHCs and managed care organizations[10, 30]. There appears to be a paucity of literature discussing the details of SBHC program planning, implementation, and evaluation. There is also little about SBHCs in rural areas. An

assessment of SBHCs in West Virginia conducted in 2000 was the first of its kind on the role of SBHCs in rural settings[27]. Even then, the article is an outcome assessment and provides little information in how to successfully plan and implement such a program.

The necessity for published program planning, implementation, and evaluation information from successful SBHC programs is evident. If SBHCs are increasing in both rural and urban areas and becoming important sources of primary care for adolescents, there should be a more robust collection of example program plans, how programs were implemented, and ways in which they have been or should be evaluated. This would give those interested in pursuing the development of such programs information about what worked, what did not work, and different ways in which successful programs were established. While it is obvious that each city or county is unique in what makes a program succeed or fail, more detailed outlines of program plans than what is available in the literature would be helpful for the growing numbers of neighborhoods, cities, and counties (urban and rural) who value the idea of SBHCs and are working to put them in place.

Purpose of this paper: Program plan and proposed evaluation for the WISH program in Wayne County, NC

In light of the need for and value of SBHCs for adolescents and paucity of publications outlining the program planning and evaluation of successful SBHCs, specifically in rural areas, this paper will discuss the details of the program plan and propose an evaluation of the Wayne Initiative for School Health (WISH) in Wayne County, North Carolina. The WISH program was established in 1997 with the goal of implementing SBHCs in two underserved middle schools in the county. Today, there are WISH centers in four middle schools and two high schools in the county which enroll around 86% of the student body in schools with WISH centers[31].

To further examine the literature on SBHCs, this paper will first present a mini-systematic review on publications discussing elements required to plan, implement, and evaluate a SBHC. Then, the program background and context of the WISH program will be

introduced. Following this, the WISH program goals and objectives will be presented, along with suggested program theory and a logic model for implementation. The implementation plan will then be discussed. Lastly, the paper will cover the context for evaluation, suggest designs and methods of evaluation, provide evaluation planning tables with evaluation questions, and offer dissemination plans for outcome data. Concluding the paper will be a discussion about the program plan and evaluation, specifically addressing a comparison to the literature, public health implications, and strengthens and limitations. Hopefully readers will leave this paper with not only a better understanding of one program's successful plan and implementation, but also with ideas which aid in the implementation of similar programs in other locations.

MINI-SYSTEMATIC REVIEW

Introduction

Adolescents, especially those in low-income areas, face a multitude of barriers when attempting to access health care. They may have no knowledge of where to go, limited means in getting to a provider, and no way to pay once they have arrived. They are also at high risk for many health problems that can affect them for the rest of their lives, such as unintended pregnancy, sexually transmitted infections, violence, and other mental health problems[6, 7]. For this reason, school-based health centers have been created as an innovative way to provide health care to these populations[14].

As more schools, health care providers, and communities realize the value of SBHCs, it is important that they have a framework and guidance as to how successful SBHCs are planned, implemented, maintained, and evaluated. Publications on the current status of SBHCs and how they are run, as well as the necessary planning strategies and proposed evaluation strategies, are reviewed here. A general paucity of planning and evaluation data, however, signifies the need for increased publication of program planning that can be used by both urban and rural communities seeking to implement SBHCs.

Search Strategy

To search for papers on the planning and evaluation of SBHCs, the term "school-based health centers" was used in a general PubMed search. This yielded 27 articles. An overview article[32] was identified, and the 'related articles' link lead to over 2000 articles and 128 review articles. Reviews about school nurses, those from studies in countries other than the United States, those about specific programs within SBHCs, and those not actually on SBHCs were excluded. From the 20 remaining review articles, I read the abstracts to determine if they provided elements related to program planning and evaluation. A second search was conducted in PubMed using "school health centers," yielding 18 articles. Per the abstract, I excluded any article that did not relate to program planning and evaluation or organization of

SBHCs. A similar search using "school-based health centers" was conducted on Google Scholar with the same exclusion criteria. Lastly, the references of identified articles were searched for other potential articles. A few articles on SBHC program planning were identified, however their text was unobtainable online, and these were not included in the mini-systematic review[33-35]. In total, seven articles were selected for review[29, 33-41].

Review

Article Type

Of the 10 articles selected for review, three articles cover the planning and implementation of specific SBHCs around the country[33, 34, 36]. One article discusses how to implement the model of SBHCs[35]. Three are reviews of the status of SBHCs around the country[37, 39, 42] with information related to planning and evaluation, one of which is a survey of state initiatives to support SBHCs[39] and another of which is a report on grant recipients from the Robert Wood Johnson Foundation[38]. One article provides specific principles to follow while planning for SBHCs[41] and one is the published guidelines of the American Academy of Pediatrics on the development of SBHCs[40].

Implementation

Planning

All of the articles discuss some elements of the basic planning of SBHCs, ranging from minimal to extensive. One article found that planning took an average of 4-8 months before implementation[38]. The most mentioned topics related to planning were: the necessity of community involvement[36-38, 40-42], the creation of an advisory board of stakeholders[36, 38, 39, 41, 42], the requirement of a comprehensive needs assessment[37, 40, 41], and that initiation comes from either the local hospital[36, 37], local school district or health and social services[37, 40, 41], neighborhood health centers, non-profit youth agencies, or health departments[37]. Two articles mentioned the renovation of facilities and hiring of staff as well as establishing medical protocols and organizing clinical services[37, 38].

Stakeholders

The list of stakeholders or agencies involved was extensive for nearly every article. These stakeholders had representatives on the advisory committee. Representatives included pediatricians[39-41], parents[39, 40, 42, 43], students[39-41], the school district[39, 41], community leaders[36, 39, 40], the health department[36, 40, 42], the community hospital[41], mental health authority/providers[40-42], social services[40], teachers[39, 41], the local business community[39-41], local government[40], and representatives from managed care or other insurers[39, 40]. Additionally, there was mention of involving the juvenile justice/probation system, early childhood education community, the local housing authority[41], and youth service organizations[42]. Each advisory board was responsible for much of the planning and implementation.

Goals and objectives

Only four of the articles discussed goals and objectives[36, 39, 40, 42], and only one stated specific objectives of the planning process[36]. The American Academy of Pediatrics Committee on School Health recommends that formally written agreements and goals should be established[40], and another article offers the goal of establishing SBHCs to provide comprehensive primary care services with some focusing on reproductive health services[42]. The use of SBHCs as medical homes for some students, and access to primary care physical and mental health, are mentioned as well[39]. The only article with specific objectives reports initial objectives as: providing comprehensive programs to 19 elementary schools; establishing emergency collaboration between schools, hospitals, and primary care providers; establishing baselines to document health status of children; reduce school absenteeism from asthma, ADHD, and diabetes; and reduce inappropriate use of the health care system. An expansion of this program to middle schools included objectives such as: link children with health care resources for preventative care; reduce inappropriate use of health care system; reduce absences among children with chronic illness; improve health of K-8 students; and expand to neighboring county[36].

Funding

Six of the seven articles covered mention sources of funding and some discuss how funding is sustained[36, 37, 39-41] Funding comes from the federal level, state level, local level, and from private organizations. Federal funding includes Maternal and Child Health Service block grants (Title V)[39, 41], Family Planning Services program (Title X)[37, 40], Social Services block grant (Title XX)[37, 40], Early and Periodic Screening, Diagnostic, and Treatment Programs (part of Medicaid)[37, 40], Migrant Health Centers program, and other federal programs[41]. States have used their portion of Title V[39], general funds from the state legislature[37, 39, 41], tobacco excise tax, and sales tax on physical fitness membership fees to fund SBHCs[39]. Additionally, several SBHCs have established mechanisms for Medicaid reimbursement[39]. Some programs use managed care or are funded through third party reimbursement or direct pay[41]. Private funding has been used by a large number of SBHCs, especially during the planning and initiation stages. Sources include the RWJF[37-39, 41], Annie E. Casey Foundation[37, 41], Kellogg Foundation, and the Pew Charitable Trust Foundation[41].

Staffing

All articles discussed the staff requirements at varying degrees. First, SBHCs are staffed with a mid-level practitioner, such as a nurse practitioner (NP) or physician assistant (PA) to run the medical aspects clinics[37, 39-42]. Additionally, the clinics generally require a medical assistant/receptionist[38, 41], mental health professional[38-41], health educator[41], and social worker[38, 40, 41]. Other staff positions include nutritionists, dentists, and violence and substance abuse prevention specialists[39]. There is usually a pediatrician or other primary care provider on-call during hours which the SBHC is closed[38, 40], as well as general physician back-up during the day[38-40]. School nurses carried out much of the work in one program[36]. One program also mentioned hiring an evaluation coordinator and administrative support staff[41]. Pediatricians or other primary care providers serve as good medical directors for the program[40].

Services

The following services were mentioned as being provided by programs in the included studies: acute illness or accident care[37-40, 42]; immunizations[36, 38, 39, 42]; vision/hearing screening[36, 38], scoliosis screening[36], and general acute and chronic illness screening[37, 40]; reproductive health services and family planning[37-40, 42]; physical exams[38, 42]; chronic disease management[36, 38]; mental health services[37, 39, 40, 42]; nutrition counseling and health education[37-40, 42]; substance abuse counseling[38, 40, 42]; dental care[38, 40, 42]; and medication administration[36, 42]. One site used nurses to aid in the development of Individual Education Plans, Individual Health Plans, and Emergency Action Plans[36]. Another study reported SBHCs providing child care for teenage parents, offering job counseling, and organizing school remediation programs[37]. Reproductive health services ranged from referrals to gynecological exams, HIV/other STI testing, contraceptive distribution, pregnancy testing, prenatal care depending on the clinic[37].

Hours

Three of the articles discussed logistics such as operation hours[37, 38, 42]. All studies found SBHCs were open during school hours. When they were closed, most clinics had an on-call number to a supporting primary care provider. Some schools were found to have evening and weekend hours, with arrangements for back-up care from local providers and hospitals. One article found that nearly 50% of SBHCs were open during the summer[42].

Evaluation

All seven reviewed articles include discussion about ways in which SBHCs tracked data and evaluated outcomes, or suggested ways in which tracking and evaluation should be done. They argue that SBHC programs should establish a way to collect the data and create mechanisms for analysis and reporting[39, 40]. States may require internal chart reviews and audits[39]. There is a general lack of baseline data on students[42], which should be kept in mind as evaluation begins. Goals and outcomes must be defined clearly and be easily documented[37]. Demographic data is valuable, and collected in many SBHCs. This includes the percentage of

students with parental consent for use of the SBHCs, gender and race/ethnicity of SBHCs users, and type/frequency of patient visit[38]. Various additional outcome measures to evaluate are suggested by the publications: attendance/absenteeism[36, 42]; student achievement[36, 41]; dropout rates, school behavior, and safety[36]; emergency department visits and hospital admissions[36, 37]; pregnancy rates[41]; proportion of students seeking contraceptive prior to the onset of sexual activity, consistency of contraceptive use, and likelihood of seeking treatment for medical conditions detected through SHBC screening[37]; and substance abuse and smoking rates[42]. Other important outcomes to evaluate include services valued by parents, administrators, and teachers[36].

A program in eastern North Carolina surveyed administrators, teachers, counselors, social workers, and psychologists to obtain their perceived impact of the SBHCs on the students. The same study surveyed students for quality of life[36]. Evaluation of cost, functioning, and quality assurance was cited as important by another article[40, 41].

SBHC evaluation outcomes

One review article mentions concerns that often in evaluation of SBHCs there have been inappropriate or inadequate comparison groups, failure to consider self-selection in enrollment, inadequate sample size, and poor fit between intervention intent and outcome measures[42]. The extent of evaluation reported in the one article that discussed outcomes limited its data to enrollments and reason for visits[38]. While there are many published articles that focus on one specific evaluation outcome of SBHCs[13, 26-29], there is limited mention of program planning and subsequent evaluation of the process and performance.

Discussion

The most striking finding upon searching for publications outlining the program planning and evaluation for SBHCs is the paucity of such articles. Even of those reviewed here, only three were based on a specific program. This is surprising given the extent at which SBHCs are multiplying and receiving overwhelming support from many pediatricians, school administrations

and teachers, parents, students, and community leaders. One would anticipate that both successes and failures in this area would be published. Clearly, the manner in which each SBHC program is planned varies, however it would be very useful for those intending to start such programs to see concrete examples of what worked and what did not work during the planning and implementation phases. Additionally, the ways in which planning is successful in urban areas may differ greatly from that of rural areas, and it would be valuable to have multiple examples of each.

Along with few concrete examples of planning of specific programs, there was only one study with concrete goals and objectives reported. Again, the specific objectives for each SBHC program differ vastly depending on the needs of the community and students. Regardless, examples of specific objectives and how they were successfully achieved would be helpful for those working to establish their own SBHC program. Additionally, only one article discussed length of planning. While this, too, would differ, understanding the timeframe for planning in some settings might be encouraging for planners.

One element all articles agreed on was the imperative nature of involving the community, specifically parents and students as well as many other stakeholders, in an initial needs assessment and the planning of the SHBC program. While including more stakeholders who may approach the program with different perspectives may initially increase planning time and cause some conflict, the support these articles give for the inclusion of groups ranging from pediatricians to law enforcement makes it evident that the inclusion of these groups is what will ultimately allow for the program's success. The leadership, however, depends on the situation and community, and the program could be spearheaded from the education side, health care side, or both.

All of the articles included multiple ways of achieving funding for the programs, ranging from federal and state funds to grants from non-profit agencies. One concern is that few discussed ways in which the clinics could become self-sufficient in time. Many of the private

grants (RWJF, etc) are for planning and implementation purposes, not to help sustain the programs. Additionally, money from federal and state programs or grants may not be entirely stable or safe to rely on year after year. There was discussion of using Medicaid, third-party reimbursement, self-pay, and managed care to fund on-going care. More attention to funding that makes the centers self-sustaining would be useful and help planners establishing lasting means for funding.

The majority of articles make it clear that the care should be comprehensive by both the diversity of staff involved (PA/NP, medical assistant, mental health personnel, health educators, social workers, substance abuse counselors, etc) and the vast number of service provided. These elements are valuable in the planning, as it provides planners with an idea of the comprehensive nature of the program in the beginning and sets a standard at which SBHCs should function. It also allows planners to consider who they would like to be involved as stakeholders in order to have input and support from such diverse groups of providers. While the services and staff are essentially the same in each article, there are some variations, making it evident that they depend on the location and needs of the community. Planners should look to avoid duplication of services and provide what students do not have access to on their own. Additionally, some articles talked in detail about reproductive health services while others made little mention of them. This, too, depends on location, needs, and the political environment of the community in which the SBHC is being created. Some SBHCs go as far as providing contraceptives and will test for all STIs, whereas others refer for anything other than standard gynecological exams and teach abstinence-only education. Planners must keep this in mind as they decide which services to provide and work to have as little conflict and concern from parents and local politicians.

One element that was not present in any of the articles in detail was how the centers operate on a daily basis. Naturally, this too varies depending on center and county. However, for future planners a concrete idea of what a SBHC looks like on a day-to-day basis may help as

they begin to plan their own SBHC program. This could be included in the publications that write of specific programs.

Lastly, as many articles mentioned, there is a great need for the establishment of concrete, measurable outcomes that are appropriate for the interventions. Additionally, baseline data is very important for any effort to evaluate success in the multiple potential outcome measures. While the majority of the articles suggested possible outcome measures, they varied greatly. This is understandable, as the outcomes should be based on the service and needs of the community. However, it may be valuable to have some standardized data collection and outcome measured for all SBHCs, or at least all SBHC on a state-by-state basis. Several articles also mentioned the difference between process outcomes and effect outcomes. Any SBHC should have evaluation mechanisms in place for both the functioning of the program and the outcomes for students and the community. Making this clear is important for future planners, so that quality and effective care is given through an efficient process. In general, evaluation should be stressed as imperative in any program, and establishing realistic and measurable outcomes should be discussed in publications about SBHCs.

Conclusion

Although some of the publications are very useful when it comes to SBHC program planning and evaluation, it would be beneficial for future SBHC planners to have access to program plans and evaluation to many more SBHC programs from various regions of the US. It is important to have the principles[41] and guidelines[40], however the concrete planning steps, concrete goals and objectives, as well as outcome measures and means of evaluation are a necessity to help in the successful planning of additional SBHCs. Finding a means by which this could take place (such as having programs written up by graduate students in education or health) would benefit the SBHCs currently in place as well as those that will be established in the future.

PROGRAM PLANNING

This section includes information about Wayne County and the background of the program's planning, as well as the national, state, and local context into which the WISH program was developed. The initial planning steps, such as selecting the schools to receive centers and a needs assessment completed by parents at the selected schools are also discussed. Information concerning stakeholders, acceptability among stakeholders and the community, finances required, and resources/feasibility of the program is included. Finally, the program's goals and objectives, as well as program planning theory, are outlined.

Background

The WISH centers are located in Wayne County, NC. Wayne Country is located approximately 50 miles East of Raleigh, North Carolina. It contains one large town, Goldsboro, and ten smaller towns. In 2000 the total population in Wayne County was 113,329, with 21.8% between the ages of five and nineteen. At the time, 61.3% of the population was White, 33.0% of the population was Black, and 4.9% were Hispanic [44]. The median household income in 2000 was estimated to be $33,942 and the per capita income in the county was $17,010. The overall poverty rate was 13.8%, while the child poverty rate was 18.6%. A total of 18.5% of the population was uninsured in 2000[45].

In 1997, North Carolina State statistics found that Wayne County ranked 9th in having the most uninsured children in the state (19.83%)[31, 46]. Additionally, closer examination of the school system revealed the presence of only one registered nurse for 27 schools in the county.

Studies have shown that unmet medical needs are highest for uninsured children and though without a usual source of care [47], as well as that a lack of health insurance coverage for children was among the strongest predictors of lack of a quality medical home [48]. With this in mind, that same year the Duke Endowment contacted Sissy Lee-Elmore, Director of Community Outreach for Wayne Memorial Hospital, with hopes of funding the establishment of two school-based health centers (SBHCs)[31]. The goal was to address age-appropriate access to primary

care, mental health services, and preventative health services to uninsured adolescents at these two sites[46]. Ms. Lee-Elmore contacted Dr. David Tayloe, a pediatrician at Goldsboro Pediatrics to propose the idea. Dr. Tayloe then worked with the Wayne Memorial Hospital CEO, the Wayne County school superintendent, and the Wayne County Heath Department to write a planning grant for the idea of SBHCs. An $8000 grant was awarded by Duke Endowment in 1997 to begin the planning process. The goal of the planning grant was to assess feasibility for the program in the community and develop a start-up grant proposal for the establishment of two SBHCs in Wayne County to be submitted to the Robert Wood Johnson Foundation and Duke Endowment later that year[49].

Program Context

At the national level

The desire in Wayne County to establish comprehensive school-based health centers (SBHCs) in two of their middle schools could not have come at a better time for planners. In 1994 the Robert Wood Johnson Foundation (RWJF) established a program called *Making the Grade: State and Local Partnerships to Establish School-Based Health Centers.* At the program's inception, a national survey revealed the presence of 607 SBHC sites in 41 states and the District of Columbia [39]. The goal of *Making the Grade* was to increase this number by supporting state-local collaborations in the establishment of SBHCs and the promotion of policies to sustain the centers long term. The RWJF was awarding grants to states, requiring them to partner with local health care providers and school districts to create new SBHCs in at least two communities, implement the comprehensive SBHC model, and collaborate with other agencies through a coordinating body. Locally, those receiving funds were to form a formal advisory body, select a medical advisor to serve as the lead organization, build local support, create a SBHC in two or more schools, and develop plans expansion [50].

At the state level

North Carolina had already responded to the SBHC initiative of increasing child and adolescent access to health care in schools by establishing a state office for SBHC within the Division of Women's and Children's Health in the Department of Health and Human Services. The first SBHC in the state opened in 1987 as part of the RWJF *School-Based Adolescent Health Care Program*, and the state General Assembly appropriated funds in 1992 for the creation of 14 more SBHCs or school-linked health centers (located off school campuses, but nearby). However, few offered comprehensive care at the time that *Making the Grade* came to North Carolina in 1994. The goals of NC *Making the Grade* included: (1) implementing the state's vision for establishing and maintaining SBHCs; (2) developing a comprehensive financing strategy; (3) establishing service standards and levels of care; (4) building broad-based support for SBHCs; and (5) create model comprehensive SBHCs in at least two communities [51].

Locally

Only a few years after the creation of NC *Making the Grade*, as mentioned, the Duke Endowment approached Wayne Memorial Hospital with the idea of creating SBHCs in Wayne County to address the high levels of uninsured children in the county. It is within this state and national context of high levels of support and desire to create comprehensive SBHCs and establish service standards that the Wayne Initiative for School Health (WISH) was born. The clinics would be named 'WISH centers.'

Initial Planning

Selecting Schools

The first task in this project determined by the initial steering committee, composed of Dr. Tayloe, Ms. Sissy Lee-Elmore, the Wayne Memorial Hospital CEO, and the director of the Wayne County Health Department were to select two schools for the centers. In deciding between starting the programs in high schools or middle schools, the committee agreed that

beginning to provide care in high schools would mean providers would be fighting an uphill battle working with general health, mental health, reproductive health, and health education in teens. Therefore, they decided to implement the two WISH centers in middle schools, generally ages 11-13, to begin working with the children at younger ages in hopes of preventing many of the outcomes in teens associated with a lack of health care [49]. The program was presented to middle schools in the county, and the schools then applied to receive centers. Goldsboro Intermediate and Brogden Middle School were ultimately selected. Both schools serve predominantly low-income students who were uninsured or on Medicaid, as well as proved to have supportive administrations committed to the success of WISH centers in their schools. These two elements played a key role in the selection of these two middle schools. Initial baseline data was collected on pregnancy rates, discipline referrals, arrests, and number of students on behavioral medication.

Parental Assessment

The next step for the steering committee was to determine parental views on health care needs of students in Goldsboro Intermediate and Brogden Middle School. Parental support and input for the WISH centers was an absolute necessity in order for the program to be successful. The concept of the centers was presented at PTA meetings by steering committee members and surveys were extended to all parents to assess their views of a SBHC in their schools. Results showed that 82% of parents felt that it was 'hard' to 'extremely hard' to obtain health care for their children. They cited cost of services, cost of insurance, financial changes, shortage of providers, waiting time, and that they could not leave work as reasons they felt it was difficult to obtain care. The top ten medical issues parents worried about affecting their children were: (1) basic health care; (2) stress and mental health issues; (3) serious, undetected illness; (4) drug and alcohol use; (5) truancy/school drop-out; (6) communicable diseases; (7) HIV/AIDS; (8) teen pregnancy; (9) violence/gang crimes; (10) premature/out-of-wedlock pregnancy. Ninety-two percent of parents reported they would like to see the following services

provided in a SBHC: (1) counseling/mental health services; (2) annual physical exam/sports physical; (3) dug and alcohol prevention and counseling; (4) immunizations; (5) diagnosis and treatment of acute illness; (6) health education; (7) nutrition education; (8) general hygiene care/instruction; (9) diagnosis and treatment of sexually transmitted infections (STIs); (10) services for pregnancy; (11) dispensing of daily medications. Sixty percent of parents said they would visit the WISH centers to discuss their child's health and care[46]. This information not only demonstrated the parental perceived need for access to services, but provided information about services that would be most useful in the WISH centers.

Stakeholders

The initial steering committee then decided that in order to be in line with national and state priorities to build broad-based support, as well as to ensure the success of WISH, they would enlist the support and involvement of multiple potential stakeholders in Wayne County. They identified the following groups who would have a vested interest in the program and from whom they would gain support and collaboration (in no particular order): (1) local pediatricians; (2) parents/the general public; (3) Wayne Memorial Hospital administration; (4) school administrations and teachers in the selected schools; (5) local and state politicians; (6) the Health Department; (7) the local Department of Social Services (DSS); (8) mental health providers; (9) community leaders; (10) local law enforcement agencies. In addition to being key in the development of the WISH centers, these stakeholders had resources that could prove valuable in the maintenance of the centers. In return, stakeholders would benefit in terms of contributing to improving the health and well-being of students in two middle schools in the county, and would experience being a part of a novel initiative to provide truly comprehensive primary care to children in their community. Each was approached with the proposal of the centers to determine acceptability and involvement in the planning and implementation process of the grant[49].

Acceptability

While approaching key stakeholders in the development of the WISH centers, the steering committee had the responsibility of determining the acceptability in regards to the proposed program. Generally, there was overwhelmingly positive response to the program. Despite concerns about what types of reproductive education and services would be provided, parents were clearly in favor of providing their children with daily access to health care services. The CEO of Wayne Memorial Hospital was willing to contribute in multiple ways (which will be discussed later) to ensure the creation and maintenance of the WISH centers. The administrations in the selected middle schools, as well as the county superintendent, were willing to put forth effort and resources to create and integrate the WISH centers into their schools. Teachers were extremely supportive, as they witnessed the medical needs of their students, ranging from simple yearly physicals and nutrition counseling to consistent medication administration for ADHD and long-term mental health services[49]. The director of the Wayne County Health Department expressed complete support for the creation of WISH centers, and was willing to help significantly with resources for the program. The local Department of Social Services (DSS) was involved in the lives of many of the children at these middle schools, and easily backed the WISH program. They would be crucial in assisting families in the enrollment of their children in Medicaid and in the WISH centers. Mental health needs for these children were identified as significant by the parents, and East Point Mental Health (a private local mental health provider) endorsed the program and was willing to commit resources. Levels of acceptability were also sought from community leaders, such as church leaders and those involved with programs to help children, demonstrated a great deal of support for the WISH centers, as well. Even the opinions of local law enforcement agencies were wanted, and the sheriff's department and police chief endorsed the program.

Naturally, support of community pediatricians and local politicians was immensely important. Although Dr. Tayloe was intimately involved in the WISH program from the beginning,

other pediatricians in the community were hesitant to put their full support behind the program. They expressed concerns that offering children health services in schools may decrease utilization of their medical office visits, thereby decreasing insurance reimbursement. They wanted assurance that their clinic would not lose substantial revenue to the WISH centers. Overall, local politicians, such as the county commissioner and city council members, were supportive of the WISH program. However, given the generally conservative area, several politicians were hesitant to give full support until it was clear to what degree the WISH centers would provide the reproductive health services and if they would be involved in the distribution of contraceptives in the schools. They felt providing contraception was not appropriate and were not supportive of certain reproductive health education services. As mentioned, similar concerns were voiced by some parents. This, along with pediatricians concerns, would have to be addressed by the initial planning committee in order to garner fill support from these stakeholders for the WISH program.

Addressing problems with acceptability

The initial steering committee was charged with addressing the concerns of pediatricians (that the WISH centers would decrease their revenue), and parents and politicians (who did not support the distribution of contraceptives in the clinics and certain types of reproductive health education).

Concerns by the pediatricians were alleviated by demonstrating that the majority of children whom the WISH centers would serve were not receiving care anywhere, including the pediatricians offices. The steering committee pulled records at Goldsboro Pediatrics of 100 random children who were students at the proposed WISH schools and would benefit from the centers. Upon examination of the records, it became evident that the majority of these children had not been seen at the clinic at all in several years. With this information, the pediatricians acknowledged that the children were not receiving care anywhere and providing them with the WISH center services would not take patients and revenue from the pediatric clinic[49].

Parental and political concerns regarding contraceptive distribution and reproductive health education that included discussion about contraceptives were alleviated in two ways. First, the steering committee voted that the WISH centers would act according to state law on reproductive health in schools, teaching abstinence-only education and would not distribute contraceptives. If a student wished for such services they would be referred by staff to their local pediatrician or the health department. Second, as stated, parents would be involved in selecting the types of services offered, and could help determine what reproductive services would be provided to their children. With these two issues resolved, pediatricians, parents, and politicians were in full support of the establishment of the WISH centers[49].

Finances/funding

The initial steering committee estimated that the WISH centers would require $250,000 year (for both centers) for the first year and $210,000 subsequent years to function at the level envisioned[46]. These estimates included salaries for the full-time staff (the program manager, two RNs, a social worker serving as a mental health provider), part time health educators, part time DSS worker, clinic renovations, and supplies. The steering committee quickly applied for 501(c)(3) status to establish the WISH program as a non-profit agency. Grant funding from the Robert Wood Johnson Foundation's *Making the Grade* program was applied for and won, providing the program with $492,000 over the first three years for both centers. The steering committee was also charged with finding sustainable means of funding the centers once they were started[49]. Full support from the community and stakeholders with valuable resources make sustainability possible.

Resources/feasibility

Given the support of the stakeholders and their willingness to provide resources, there were few issues related to feasibility. With stakeholders who were willing to commit the following resources, the establishment of two WISH centers was feasible:

- Pediatricians: Dr. Tayloe served as the Medical Director, Goldsboro Pediatrics agreed to provide on-call services for student patients at nights and on weekends ($10,000/year). Goldsboro Pediatrics also committed $5000/year of funding for lab supplies and lab services.
- Wayne Memorial Hospital: the hospital committed to paying the salaries and benefits of the two RNs (one at each school), the NP, and the program director ($70,000/year). This was done under the assumption that reimbursements from the services provided at the centers (Medicaid, etc) would go back to the hospital funds to aid in the salary payments. They would also provide billing services for the SBHCs. The hospital promised donations of computers and other supplies.
- School system: Goldsboro Intermediate and Brogden Middle agreed to make space and build the clinics so that they met certain codes and specifications, which cost $25,000. They agreed to pay for utilities and maintenance of the space. Their access to students and parents meant they would also play a role in enrolling children in Medicaid to increase the number of children who could be seen.
- Wayne County Department of Social Services: offered an in-kind Medicaid eligibility specialist to enroll children in Medicaid, at the WISH centers one day per week ($15,000/year).
- Local politicians: Offered monetary funds, and $14,000 a year for the WISH program was written into the city budget.
- Wayne Co. Health Department: the director of the health department offered to incorporate part-time work at the health centers into their nutritionist and health educator staff; this in-kind donation of staff resulted in 1 day per school per at each center ($11,600). Additionally, the health department agreed to provide

immunizations for the WISH students to update vaccinations and gave a $70,000 cash donation.

- East Point Mental Health: the organization committed to provide a full-time social worker in-kind who would split their time seeing students between the two WISH centers ($29,000/year).
- Local industries and businesses, church groups, civic groups, and organizations related to the well-being of children all volunteered labor (for renovation and clinic-set up), supplies, financial support, and offered to undertake fundraising to support the WISH centers.

One major determinant of feasibility was related to payment and reimbursement for services at the WISH centers. Success in this program was dependent on finding a way to sustainably fund the centers and their services. One idea proposed was to work with Medicaid to secure reimbursement for services provided for children on Medicaid. At the time, no SBHC in North Carolina was billing Medicaid. Members of the steering committee began talks with Medicaid representatives about WISH center reimbursements. Obtaining such reimbursements would require excellent documentation of encounters and services. For this reason (among others), the steering committee decided to establish electronic medical records for the WISH centers. They obtained software designed for the centers for tracking and billing, and developed their own encounter form that matched specifications put forth by Medicaid. With these systems in the plan, Medicaid agreed to reimburse the WISH centers for services. Wayne County Memorial Hospital agreed to provide billing services through their hospital billing department. The use of Medicaid for reimbursement also meant that the centers and schools needed to commit to enrolling as many eligible students as possible in Medicaid. The schools and DSS workers at each school agreed to aggressively work to enroll eligible students[49].

GOALS AND OBJECTIVES

The stated goal of the WISH program was 'to improve the health and well-being of students at Brogden Middle School and Goldsboro Middle School in Goldsboro, North Carolina.' Objectives are as follows[46]:

Short-term (process) objectives

Objective 1

By one year, open school-based health centers (SBHCs) in Brogden Middle School and Goldsboro Middle School.

Objective 2

By two months after opening the school-based health centers, enroll 45% of the student body in Brogden Middle and Goldsboro Middle into the centers.

Objective 3

By four months after opening the SBHCs, provide service or have contact with a minimum of 100 students at each school.

Objective 4

By six months after opening the SBHCs, enroll 75% of eligible children in Brogden and Goldsboro Middle into Medicaid.

Long-term (outcome) objectives

Objective 1

Provide comprehensive health care services to students in Brogden Middle School and Goldsboro Middle school through the SBHCs.

Objective 2

Decrease health-related absenteeism among students at Brogden Middle and Goldsboro Middle Schools.

Objective 3

Promote sustainability of the SBHCs in Brogden Middle and Goldsboro Middle Schools.

Program Theory

When the WISH program was developed in 1997, according to WISH Director Phyllis Hill, RN, there was no specific theory used to guide their implementation. A combination of visionary leaders, capable people, support of the entire community, and need allowed the planning and implementation of the program to take place. However, Community Organization theory would be most appropriate for the development of a program such as WISH.

Community Organization Theory

The Community Organization Theory helps community groups identify common problems or goals, mobilize resources, and develop and implement strategies for reaching goals. The components of the theory include empowerment, community competency, participation and relevance, issue selection, and critical consciousness. These components stimulate problem solving and activate community members, increase self-efficacy at the community level, involve citizen activation and a collective sense of support for change, focus on specific concerns as a point around which the community can rally, and stress an active search for the root cause of the problem[52]. This is most appropriate as the WISH program is truly a community effort to improve access to health care for children who may be receiving very little. The use of this overarching theory empowered the multiple stakeholders involved and increased the participation and investment or those in the community, ranging from parents to politicians to health care providers in multiple settings.

IMPLEMENTATION PLAN

This section includes an implementation chart, with process implementation and outcome implementation objectives, strategies/activities, and resources/needs. The logic model for the WISH centers is also presented here.

IMPLEMENTATION PLANNING TABLE

Process Implementation		
Objectives	*Strategies/activities*	*Resources/needs*
By one year, open SBHCs in Brogden Middle School and Goldsboro Intermediate School	• By six months, secure grant funding ($375,000 over 3 years)	Identification of grant opportunities, education on grant writing, writers to complete grants, approval by advisory board
	• By six months, recruit and finalize the Advisory Board	Role of advisory board and needs established, discussion by initial steering committee with stakeholders, invitations to advisory board
	• By seven months, finalize planning	Advisory board will create subcommittees: medical, funding, facilities, parental. Each committee will finalize their responsibilities for the SBHCs.
	• By nine months, complete membership on Student Advisory Council	Presentation of clinic to students; application distribution, collection, reading; selection of students.
	• By eleven months finalize written policies and procedures	Medical committee will need information on required policies and procedures; creation of document
By two months after opening WISH centers, enroll 45% of the student body of Brogden Middle and Goldsboro Intermediate into the centers.	• One month prior to opening, present model to PTSA, teachers/staff, and students in each school	Proposal of model by parental committee; PowerPoint, space, time, advertising for presentation

	• One month prior to opening host an Open House in the clinics for students, parents, teachers/staff	Advertising (pamphlets, notes home with students, posters at school and in parking lot); advisory board and clinic staff at open house; date and time to hold it
	• One month prior to opening send home packets with enrollment forms to each child's parent/guardian	Completion of enrollment forms, consent forms, medical history forms (medical committee); prepared packets, means of collecting packets, means of tracking enrollment
	• One month after opening, send follow-up packets to un-enrolled children's families with follow-up phone calls	Copies of packets, list of un-enrolled students, contact phone numbers
By four months after opening the WISH centers, enroll 75% of eligible children into Medicaid at Brogden Middle and Goldsboro Intermediate	• Send financial information survey forms home with children	Financial survey; means of handing out in school, means of collection, list of respondents
By five months after opening SBHCs, provide service or have contact with a minimum of 100 students at each school.	• By December 1, be open and operational	Facility completed; medical procedures/policies completed; students enrolled; staff oriented
	• Educate teachers and staff on referral process	Presentation materials on referrals for teachers and staff; visit to clinic
	• Educate specialized staff on referral process	Presentation materials on referrals, visit to clinic
Outcome implementation		
Provide comprehensive health care services to students in Brogden Middle and Goldsboro Intermediate Schools through the WISH centers	• Enroll 80% of the student population	Enrollment forms, contact with students and parents, advertisement, follow-up with families
	• Provide diagnoses and treatment of health needs with labs and referrals for: acute illnesses, nutrition, hygiene, reproductive health,	Facilities; clinic room supplies; lab supplies; method of identifying students who need mental health and health education services and

	mental health	a clear means of referral and follow-up;
	• Train staff to adequately meet needs of students	Multiple training seminars to familiarize staff with program, what they can do in the centers; and how to refer; medical staff to run trainings
	• Obtain supplies and equipment needed to provide services that are sufficient and of high standard	Funding for supplies and equipment, purchase ((or acceptance of donations) of supplies; supply set up in the centers
Decrease the number of health-related school absences for children in Brogden and Goldsboro Middle Schools.	• Provide care and resources for students with chronic medical conditions with frequent monitoring and education as necessary (asthma, diabetes, etc)	Staff with appropriate training and follow-up; significant contact with students; education for students and parents
	• Assess and treat students presenting with acute illness to determine if they need to leave school or can receive short-term treatment in the clinic and return to class	Appropriately trained staff; protocol for presentation of acute illnesses and course of action; supplies for diagnosis and treatment
Promote sustainability of the WISH centers in Brogden Middle and Goldsboro Middle Schools.	• Promote funding strategies to aid in sustainability of the WISH program	Data to secure commitment from participating agencies; continued financial development through creativity, research, and aggressive activity; meetings with billing company about billing system upgrades, updates, and procedures; continued grant funding research for opportunities
	• Continued communication and collaboration with stakeholders: expand and maintain comprehensive network; assess resources and assure feedback; communicate outcomes	Method of communication with stakeholders; advisory board member responsible for setting up meetings and contacting stakeholders; advisory board member responsible for networking to expand support

	• Marketing of program for continued support: encourage news, media events highlighting the WISH program; working with local colleges, RN nursing programs to develop rotations for students in WISH centers; develop public relations/marketing tool	Education in marketing approaches; media-WISH program liaison; contact with local colleges

LOGIC MODEL – WISH Centers in Goldsboro, NC

Resources	Activities	Outputs	Short- and Long-Term Outcomes	Impact
In order to accomplish our set of activities we will need the following:	*In order to address our problem or asset we will accomplish the following activities:*	*We expect that once accomplished these activities will produce the following evidence or service delivery:*	*We expect that if accomplished these activities will lead to the following changes in 1-3 then 4-6 years:*	*We expect that if accomplished these activities will lead to the following changes in 7-10 years:*
• Advisory board of stakeholders	• Form committees to address funding, parental support, facilities, and medical affairs of the SBHCs; meet on a monthly basis to discuss status of SBHCs; steer planning and implementation of SBHCs.	• SBHCs will be opened in Brogden Middle School and Goldsboro Middle School within one year.	• 1-3 years: students of these schools will have access to affordable health care in their schools. 4-6 years: students will have improved health.	• Students will have increased health outcomes; SBHCs will expand to other schools in the county.
• Funding	• Use of funds for creating facilities, paying staff, purchasing supplies and equipment, and providing services.	• SBHCs will be opened and fully funded for at least three years.	• 1-3 years: students will have access to health care providers in their schools. 4-6 years: student health will be improved	• Student health outcomes will be improved; SBHCs will be sustainable funding wise.
• Facilities	• Provide appropriate	• Up-to-standard facilities in	• 1-3 years: students will	

	space in schools for clinics where students can be seen and treated in a confidential manner.	Brogden Middle and Goldsboro Middle with a reception office, waiting room, private exam rooms, vitals/triage room, and private rooms for mental health/health education.	have access to health care in a confidential manner; health will be improved. 4-6 years: student health will be improved.	
• Parental Support	• Support creation of the SBHCs, participate in planning and implementation, enroll their children in the program, enroll their children (when eligible) in Medicaid	• Students will be enrolled in the SBHC program	• 1-3 years: students will receive comprehensive medical care in the SBHCs; they will experience improved health. 4-6 years: students will have improved health	• Improved health for students in these schools; expansion of program with parental support to other schools in the county
• Full-time staff (PA/NP, 2RNs, assistants)	• Run administrative side of clinic (assistants); see students for physicals and acute visits (RNs, PA/NP); provide appropriate treatment and/or referral.	• Students will receive comprehensive medical care in their schools.	• 1-3 years: students will have improved health outcomes, decreased health-related absenteeism, improved control over chronic illnesses (i.e. asthma, diabetes), and decreased ED visits and hospitalizations. 4-6 years: same outcomes.	• The health of students at Brogden Middle and Goldsboro Middle schools will be improved; the program will be expanded to additional schools.
• Mental Health providers	• Provide students identified during annual physical or through teacher or parent referral with mental	• Students with mental health needs will be seen on a consistent basis by mental health providers.	• 1-3 years: students will have improved mental health and sustained access to mental health providers;	• Students will have improved mental health, benefits of providing mental health

	health care.		school will see improved behavior students will have improved mental health. 4-6 years: same outcomes.	services to adolescent populations in schools will be evident.
• Health Education providers	• Provide classroom, group, and individual health education on nutrition, hygiene, exercise, reproductive health, and substance abuse, depending on student needs and referrals.	• Students will have improved knowledge of good nutrition, hygiene, exercise, reproductive health, and substance abuse.	• 1-3 years: students will have improved nutrition and hygiene, decreased rates of STIs and pregnancy, decreased rates of substance abuse. 4-6 years: students will have lower rates of obesity, decreased STI and pregnancy rates, and decreased rates of substance abuse.	• Adolescent health knowledge will be improved and health outcomes will be improved.
• Database for patient info and tracking	• Student visits and types of services provided will be put into electronic medical record database.	• Data on number of students using the SBHCs, reasons for visits, services and treatments provided, referrals made.	• 1-3 years: History of services with ability to determine outcomes of care. 4-6 years: same.	
• Baseline data of students for desired outcomes	• Provide for starting place from which to compare student health as a consequence of SBHC utilization.	• Reliable comparison data, ability to provide numerical information about outcome improvement.	• 1-3 years: both SBHCs will be able to compare outcomes to baseline data, show effectiveness (or lack thereof) of the programs; 4-6 years: changes	• Ability to solidly prove effectiveness of program and link provided services to desired outcomes; expansion of successful

			will be made in system to reflect programs that are more and less effective in achieving desired outcomes	programs to other schools in the county

EVALUATION OF WISH CENTERS

This section covers the study design and methods for evaluation for the WISH centers, evaluation planning tables, and method for dissemination plan of evaluation data.

Study Design

Corresponding with the program objectives, both the process objectives and outcome objectives must be evaluated. The process evaluation is to monitor the planning and implementation, as well as develop ways in which to improve the process. No comparison is needed for this part of the evaluation. The evaluation of outcome objectives, however, would be the most meaningful if compared to a similar group of students who do not have access to a SBHC. The WISH program selected two middle schools that demonstrated a commitment to the program and serve greater numbers of uninsured or Medicaid students to receive the school-based health centers (SBHCs). Thus, the selection of two schools without SBHCs in the same county with similar demographics, and who are willing to allow collection of outcome data, would be ideal in determining the ability of the WISH program to reach its goals and objectives of improving the health of its students. Additionally, given the fact that the program will run for many years, it is important to use a study design that compares outcomes for students in the program and at comparison schools before the implementation of the SBHCs, and then on a consistent basis following the start of the program.

The best study design to evaluate the WISH program is, therefore, a *multiple group, repeated measures of time series* design. This design is *quasi-experimental*, as the groups will be non-matched and non-randomized. In this type of study, data is collected on multiple groups several times before the implementation of the program (on both schools receiving the WISH centers and those with no WISH centers), and then at several points at the same time on the

same groups after the program has been implemented. Comparing the students in SBHCs to those without access to SBHCs will increase validity and decrease bias of the study.

Examples of measures and outcomes according to the WISH programs objectives will include percentage of students enrolled in Medicaid, rates of WISH center use and reasons for visit, and the use of mental health providers and health educators. Similar data will be collected on students in the comparison schools: the percentage of students enrolled in Medicaid; use and reason for visit of primary care providers in the community; use of community mental health providers, why, and frequency; and, exposure to health educators in schools or at the health department. Additionally, comparisons of pregnancy rates, emergency room visits, and health-related absences between students with access to WISH centers and those in schools without WISH centers will be included to evaluate longer-term outcomes.

In order to find control schools, the first step is to identify middle schools in the county or surrounding counties with similar student demographics (race, SES, insurance status) at the two schools receiving the WISH centers. Second, it must be verified that these schools have data collected on the outcomes of which the program plans on evaluating. This might require some retrospective data collection or the initiation of baseline data collection for the schools. Clearly, baseline data for the two selected middle schools must be available as well. The beneficial aspect of using schools is that data is often collected on a yearly basis at all schools, making the collection points fairly standardized. Following implementation of the programs in the two selected schools, data collection for both WISH center schools and non-WISH center schools should occur at the end of each school year and for the same outcomes.

This type of study design is ideal for comparing the effectiveness and efficiency of the WISH centers. An advantage of comparing multiple sites (two of which with the intervention and two or more of which without) is that several potential biases are decreased and data gathered will show exactly how the program benefited recipients in terms of outcomes. Challenges with this study design include difficulty obtaining the exact same measures for each school.

Additionally, while some bias may be involved if schools outside of the county are used as comparison, external validity may be questioned if only schools in the county are used. Lastly, this type of data collected over time requires sophisticated statistically analysis. However, data from this type of study will be very strong in supporting the benefits (or no benefit) from the program.

Methods for Evaluation

The evaluation methods for the WISH program are separated into *process evaluation* and *outcome evaluation*, and fall into three main categories: checklists, open-ended interviews, and organizational records/logs.

Process Evaluation

The checklists are most important for process evaluation. They verify that each step of the planning and implementation is happening according to planned. Open-ended interviews are incorporated in the process evaluation to gather information about the how and who related to process objectives. Additionally, they will provide general thoughts about each strategy of the process objectives and how they could be improved. This will provide information about what worked and did not work, as well as who was involved, in each process step. Social workers enrolling students in Medicaid, Advisory Board committee members responsible for educating students and parents about the SBHCs, and Advisory Board members responsible for improving sustainability of the program will all be interviewed. Organization records will be used by several of the stakeholders to provide valuable evaluation data. These records can come from the clinic to quantify how many students were enrolled in the clinic, from the schools to identify which students were enrolled in Medicaid or eligible but not-enrolled or how many health-related absences there were in a given month or year, or what types of marketing tools have been researched and developed.

Outcome Evaluation

Client records (student clinic records) will be extremely valuable in evaluating the performance objectives. Information from these will include student utilization of the clinics, the services provided, referrals made, and health outcomes documented. Activity logs will record who received what, when, and how (i.e. tours of the clinic, follow-up packets and calls to enroll students, who received health education sessions, and where referrals were made). Thus, the activity logs will support some of the information found in the student clinic records. Logs for long-term outcomes (pregnancies, health-related absenteeism, etc) will be given to comparison schools to complete as well. Requests will be made of area primary care providers to release visit information and service utilization by students in control schools, and hospital records will be reviewed to determine use by both students using WISH programs and those without such access.

Ideally, this approach using both quantitative and qualitative data will help improve the process of creating SBHCs as well as give stakeholders, funders, and those interested in perusing similar endeavors the numbers they would like to see that are associated with utilization of the services and improved health outcomes as a result.

EVALUATION PLANNING TABLES

Short-term (process) objectives

Objective 1
By one year, open school-based health centers (SBHCs) in Brogden Middle School and Goldsboro Middle School.

Evaluation Question	*Participant*	*Method*
Was the advisory board created by the specified date?	Advisory board	Check list
How was the advisory board recruited? Who is involved? What roles do participants play? What steps have been taken by the board in meeting objective 1? What changes would they make?	Advisory board	Open-ended interviews, surveys
Was the Student Advisory Council created by the specified date?	Advisory board committee, school administration	Check list
How was the Student Advisory Council created? How were student informed? How were they selected? What role do they play in the SBHCs? What changes would they make?	Advisory board, school administration, students	Open-ended interviews with each set of participants
Was clinic staff hired by the specified date? Who was hired and for which positions?	Advisory board committee (medical)	Check list
Who wrote position descriptions? How were the positions advertised? What recruitment mechanisms were used? How many responded? How were staff hired selected? What is their understanding of the program and their responsibilities?	Advisory board committee, clinic staff	Open-ended interviews
Were the policies and procedures written by the specified date?	Advisory board committee (medical)	Check list
What were the written	Advisory board committee	Open-ended interviews

policies and procedures required? Who was involved in writing them? From where was the framework devised? Who will have copies? How will they be used?		
Were the facilities with specified requirements complete by the specified date?	Advisory board committee (facilities), school administration	Check list
What was the time line for the facility development (how much time was required)? What was spent? Who developed the guidelines and specifications? What were challenges to creating facilities?	Advisory board committee, school administration	Open-ended interviews
What elements of the process did not work as well as anticipated (or at all? What elements need improvement? How would you recommend improvement?	Advisory board committee, school administration	Open-ended interview

Objective 2

By three months after opening the school-based health centers, enroll 45% of the student body in Brogden Middle and Goldsboro Middle into the centers.

Evaluation Question	*Participant*	*Method*
What percentages of children in each middle school are enrolled in the clinics?	Clinic staff (administrative assistant) and school administration	Organization records
How were parents informed about the program? What types of comments and questions did they have?	Parent planning committee	Open-ended interview
How were teachers and staff informed about the program? What comments and questions did they have?	Advisory board committee, school administration	Open-ended interview
How were students informed about the program? What comments and questions did they have?	Advisory board committee, school administration	Open-ended interview
What percentage of parents and staff attended the 'open house' for the SBHCs?	Clinic staff, advisory board committee, school administration	Activity logs
How many packets were sent home with students with enrollment forms?	Medical planning committee, school administration	Activity logs
What percentage of students were enrolled after packets alone?	Clinic staff, school administration	Organization records
How many follow-up packets and calls were made to un-enrolled families?	Clinic staff, school administration	Activity logs
How many students were enrolled following the follow-up packets and calls? How many for each (packets vs. calls)?	Clinic staff, school administration	Organization records

Objective 3

By four months after opening the SBHCs, provide service or have contact with a minimum of 100 students at each school.

Evaluation Question	*Participant*	*Method*
How many students did the SBHCs have contact with or provide services for in four months of existence?	SBHC assistant, RN, or PA/NP (into database)	Client (student) records
How many students came per month in the first four months?	SBHC assistant, RN, or PA/NP (into database)	Client (student) records
What services were provided? What treatments were given? What referrals were made?	SBHC assistant, RN, or PA/NP (into database)	Client (student) records
How many students came for multiple visits?	SBHC assistant, RN, or PA/NP (into database)	Client (student) records

Objective 4

By six months after opening the SBHCs, enroll 75% of eligible children in Brogden and Goldsboro Middle into Medicaid.

Evaluation Question	*Participant*	*Method*
What percentage of eligible children in the middle schools were enrolled in Medicaid by six months?	School social worker	Activity log
What percentage of eligible children were enrolled in Medicaid prior to clinic opening?	School social worker	Organization (school) records
How many children received financial form surveys to take home?	School social worker	Activity log
How many children returned surveys initially?	School social worker	Activity log
What percentage of children were eligible for, but not enrolled in Medicaid?	School social worker	Activity log
How were parents of eligible but not-enrolled children contacted about their status? How were they assisted in enrolling their children?	School social worker	Open ended interview

Long-term (outcome) objectives

Objective 1

Provide comprehensive health care services to students in Brogden Middle School and Goldsboro Middle school through the SBHCs.

Evaluation Question	*Participant*	*Method*
How many students have used services at the SBHCs?	Clinic staff (via electronic medical records)	Client (student) records
Which services have been used? At what frequency?	Clinic staff	Client (student) records
To which service have students been referred?	Clinic staff	Activity log, client (student) records
How many students of those enrolled received a yearly physical exam? How many completed the GAPS questionnaire? How many students had recorded BMI? Where were students referred following assessments?	Clinic staff	Activity log, client (student) records
How many students met with mental health providers? At what frequency?	Mental health providers, clinic staff	Activity log, client (student) records
How many students met with health educators to talk about nutrition, reproductive health, hygiene, substance abuse (each)? Which were individual versus group versus classroom?	Health educators, clinic staff	Activity log, client (student) records
What were BMIs of students who received nutrition referrals compared to before referral?	Clinic staff	Activity log, client (student) records
What were baseline pregnancy rates of students? What were pregnancy rates of students who received reproductive health education?	Clinic staff	Activity log, client (student) records
How many students utilized the ED for primary care purposes prior to the opening of SBHCs? How many enrolled students used the ED for care following the opening of SBHCs?	Clinic staff, hospital administration	Client records, organization (hospital) records

Objective 2

Decrease health-related absenteeism among students at Brogden Middle and Goldsboro Middle Schools.

Evaluation Question	*Participant*	*Method*
How many health-related absences were there per month and year prior to SBHCs? For what reasons?	School administration	Organization (school) records
How many health-related absences were there per month and year following opening of the SBHCs? For what reasons?	School administration	Organization (school) records

Objective 3

Promote sustainability of the SBHCs in Brogden Middle and Goldsboro Middle Schools.

Evaluation Question	*Participant*	*Method*
What data is available on clinic utilization, services, and health outcomes?	Clinic staff, advisory board committee	Client (student) records
How and when will the data be presented? To whom (stakeholders, etc) and at what frequency? Which data is presented? What feedback is received?	Advisory board committee	Open-ended interviews
What new sources of funding are being investigated?	Advisory board committee on funding	Open-ended interviews
In what ways is the clinic working to ensure sustainability? How is Medicaid reimbursement working? Any new negotiations?	Advisory board committee, hospital administration	Open-ended interviews, organization (clinic) records
What changes/improvements or upgrades have been made on the billing services? How have these affected the services and billing?	Clinic staff, hospital administration (billing service)	Open-ended interviews
What marketing tools have been developed?	Advisory board committee	Open-ended interviews, organization records
What news and media events have covered the programs?	Advisory board committee	Organization records, activity log

DISSEMINATION PLAN OF EVALUATION DATA

Dissemination of evaluation data about the WISH program is of the utmost importance. Not only will this keep the community involved in the program and outcomes, but will provide funders and key stakeholders with the information they desire in order to continue supporting the program.

(1) Monthly meetings will be held with the Advisory Board to discuss implementation and maintenance of the clinics on a daily basis. Additionally, Board members will be provided with data complied for data related to enrollment and use of services, including: number of students enrolled at the clinics; number of clinic visits; reasons for clinic visits and frequency; types of services were provided and frequency; number of students with a completed GAPS; number of students with a BMI recorded, percentage of those referred to health education; number of students utilizing mental health services and health education services; immunizations rates; enrollment in Medicaid. All values will be presented with a comparison to the previous month's data.

(2) At the end of the first semester of school (by mid-January), an Executive Summary will be prepared for key stakeholders such as city council, the supporting hospital administration, the health department, mental health providers, school administration, parents, and students. Data will include enrollment and service utilization statistics (as mentioned above), as well as absentee rates for medical reasons at the schools, emergency department utilization by SBHC students, expenses and revenue, and currently funding sources. Again, all data will come with comparisons from the previous reports.

(3) At the end of each school year, an annual report will be released to major funders (Robert Wood Johnson Foundation), as well as to the key stakeholders mentioned above. Advisory Board committee members will present key data to key stakeholders in person through planned events. Compiled data will include: data for categories mentioned in the six month report; pregnancy rates; challenges with the clinics; success with the clinics; teacher, student, and

parent testimonials. In addition to data collected, the reports will also include recommendations on improvement for the SBHCs.

Presentations to stakeholders will be modified to fit their main outcome interests. Presentations to city council will focus on expenses and revenue, where their funds are being spent, costs saved at the Emergency Department, health outcomes (pregnancy rates, number and types of visits, immunization rates, etc), and testimonials. Presentations to the health department, hospital, and mental health providers will have a more medical outcome focus, yet include funding and mental health/health education utilization. Presentations to parents, students, and community members will focus on improved health outcomes, access, and use, as well as testimonials. Presentations to school administrations and teachers will focus on health outcomes, absentee rates, and costs. These will be open to questions/concerns about the program.

In addition to these scheduled meetings, the Advisory Board will invite local media (newspaper, radio, TV) to openings and some annual presentations. The media will also be invited to any events related to WISH. The Medical Director will work with the clinic Director to write and submit an article to state medical journals and national pediatric journals if possible.

DISCUSSION

Recap of the WISH program

Children and adolescents have significant, and often unmet, medical needs. School-based health centers are one way to provide adolescents with a reliable source of physical and mental health care, as well as health education, which will improve their lives in the short-term and long-run. Community leaders in Wayne County, NC realized the need in their schools and the value of such programs. With the help of a planning grant, they were able to select two middle schools in the county with the greatest support and need, determine the level of parental support for SBHCs and conduct a needs assessment with parents, and collaborate with multiple stakeholders to create the Wayne Initiative for Health (WISH) program. Fortunately, the WISH center planners began the process at a time when there was a great deal of funding and support on the national and state level for the establishment of SBHCs, through the Robert Wood Johnson Foundation and other private foundations. Locally, and of the utmost importance, the entire community came together behind the WISH program, with stakeholders providing both monetary support and in-kind donations of facilities, staff, and supplies.

Short-term objectives of the WISH program were to open SBHCs in two middle schools, enroll a certain percentage of students, have contact with a minimum number of students, and enroll eligible students in Medicaid. Long-term outcome objectives were related to providing comprehensive health care to enrolled children, reducing health-related school absenteeism, and becoming a sustainable program in the schools.

Implementation was conducted by several committees on the Advisory Board-medical, facilities, funding, and parental- with specific responsibilities, using established strategies/activities for each objective. Again, the overwhelming community support made implementation possible through the provision of time and resources. For this reason, the WISH centers were opened as planned, and students were enrolled and were able to utilize the centers.

Evaluation of the WISH program is imperative in order to show stakeholders the effects of their committed resources, give funders concrete outcomes related to their grant money, and provide evidence for the effectiveness (or areas where there is none) of programs that enable adolescents to access medical care and health education on a consistent basis. Such evaluation is to be conducted on both the implementation process of the WISH centers and the long-term outcomes related to student health and sustainability. The information must then be disseminated to stakeholders and the community in the appropriate fashion.

Comparison to the Literature

As discussed in the mini-systematic review, there is little accessible literature outlining program planning and evaluation for SBHCs. While this paper provides information and details about planning, implementation, and evaluation that is lacking in the literature, there were many similarities in the approach and structure when comparing the WISH program to reviewed articles.

The literature review found only one article that provided concrete goals and objectives used in planning and implementation[38], and an overall lack of details about planning timeframes and details. Additionally, only one article gave details about program objectives and implementation strategies[36]. Lastly, there were no examples of program evaluation based on goals and objectives. For this reason, such details as part of the planning, implementation, and evaluation process of the WISH center were included in this paper.

Otherwise, the planning of the WISH program had many elements that corresponded to recommendations in the published literature. For example, nearly all articles stated the necessity of community involvement[36-38, 40-42], the importance of the creation of an advisory board of stakeholders[36, 38, 39, 41, 42], and the requirement of a comprehensive needs assessment[37, 40, 41] in the initial planning stages. These were the first several steps that the WISH program took during its initial planning. Articles also cited the value of multiple streams of funding, including private grants, state funds, in-kind donations from local stakeholders, and the use of

Medicaid for visit reimbursement[37, 39, 40, 43]. The WISH program began using grant funding, but has become self-sustaining through local funding, in-kind donations by stakeholders, and reimbursement through Medicaid and NC Choice. Lastly, many articles mentioned the great need for the establishment of concrete, measurable outcomes that are appropriate for the interventions. Goals and outcomes should be defined clearly and be easily documented[37]. Baseline data as well as demographics on students and enrollment percentages should be collected, and type/frequency of patient visit[38] should monitored. Other outcomes related to absenteeism/school drop-out[10, 20], high-risk behavior[14, 20], and pregnancy rates[19] are valuable outcomes to measure. Focusing their outcome evaluation on the states performance objectives allows for the collection of data on such outcomes, as well as evaluation of the implementation and maintenance of the centers.

In many ways this paper, and others like it, provide for the gaps in the literature about SBHCs. This includes details about planning, implementation, and evaluation that may be useful for SBHC planners. However, the similarities between this paper and much of the literature further strengthen both the process described in this paper as well as the legitimacy of other publications.

Public Health Implications

The public health implications for a successfully planned, implemented, and evaluated SBHC are unquestionable. Affordable access to physical and mental health services- as well as health education- is provided to many students that would not otherwise visit a provider or seek mental health support. Students receive their yearly physical and are screened for health problems such as high-risk behavior (drugs, alcohol, sexual activity, etc), obesity, and mental health issues. They can then immediately be referred to the appropriate provider (i.e. NP, mental health worker, or health educator) who can see them at the school with close follow-up. This type of support can increase health knowledge and possibly reduce risk-taking behavior[28], decrease pregnancy rates among teens[21], improve the care of chronic health conditions – such

as asthma[53] – and provide the mental health support some students need in order to succeed both in and out of school[14]. In addition to health benefits that can decrease morbidity and mortality among adolescents in their teen years and beyond, there is the potential for decreased emergency room visits or hospitalizations[36, 37, 54], as well as improved academic outcomes among students[19]. Finally, SBHCs provide students with the opportunity to become familiar and comfortable with the medical system and seeking help from a medical provider for anything ranging from acute illnesses to suicide, homicide, or domestic violence.

Future Studies

There are several avenues for future studies. First, the publication of more studies outlining program planning and evaluation of SBHC programs would be beneficial for any potential planner. Although planning varies greatly depending on location, resources, and leadership, it would be valuable for future planners to have concrete examples of successful and un-successful programs in various settings. Publications of evaluation of SBHCs are also of the utmost importance. There are articles on specific outcomes[13, 26-28, 55 42], but it may also be helpful to see what outcomes are found for a particular SBHC program. For this reason, it is important for planners to simultaneously discuses program planning and evaluation, and have a clear method of evaluation from the start. Evaluation on specific outcomes gives us some information, but outcome evaluation within the context of a particular program may be more useful when assessing the effectiveness SBHCs in different settings.

Strengths and Limitations

One of the major strengths of this paper lies in the fact that it outlines the program planning, implementation, and evaluation of an extremely successful SBHC program. The WISH program began with the goal of starting SBHCs in two middle schools. In the past 11 years, the program has expanded to four middle schools and two high schools in the county. They started with a great deal of grant funding, and are now locally self-sufficient. Another strength is that much of the information used (background, planning, goals and objectives, etc)

was obtained first hand from those involved in the process and actual grant proposals used for the centers. This gives the paper strength and legitimacy.

One weakness of this paper is that while it provides program background, planning, and implementation of a successful SBHC program, what worked in Wayne County is not guaranteed to work anywhere else. It is useful information as far as giving other planners ideas and strategies, however may not be generalizable to any other setting. The success of this program was due to a combination of the visionary leaders spearheading the planning and implementation, the commitment of community members and stakeholders, and the national and local context into which the program was born. Simply taking the same steps in another location does not ensure this type of success. However, the information is still valuable to other planners, as long as they realize they must carefully assess the support and needs in their own community to determine how the program will be planned and implemented. A second weakness is that the evaluation plan and tables included are based off of the stated program goals and objectives, however are not necessarily the way in which the actual program evaluated their implementation process and outcomes. They are simply an example of how one would evaluate the program given the stated objectives. For this reason, it is unclear how successful such evaluation would be.

Conclusions

School-based health centers provide affordable and accessible care to a population who otherwise might have significant unmet health needs. The WISH program in Wayne County has been extremely successful in planning, implementing, and expanding their program to reach Medicaid and uninsured students throughout the county. Although any SBHC planning and implementation process is unique to the location, setting, and leadership, information about how the WISH program planned and implemented their SBHCs is valuable to future planners. It would be valuable to have more information on how successful and un-successful programs planned and implemented their programs.

SBHCs have such a great potential for serving the multiple and potentially complex health needs of adolescents. It is extremely important for individuals and governmental bodies at all levels to recognize the value of such programs. While success ultimately seems to depend on the local community and support, national policy makers who understand the benefits of SBHCs could greatly assist in increasing the acceptability and support of such programs on a large scale. SBHC programs pull together all aspects of the community with the common interest of improving health care for our children and adolescents, which is the most sustainable way to ensure the improvement of the health of our nation on the whole.

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